

Notice of Allowability

Application No.

10/666,830

Examiner

Hoang V Nguyen

Applicant(s)

RYKEN ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to application filed 19 September 2003.
2. ☒ The allowed claim(s) is/are 1-21.
3. ☒ The drawings filed on 19 September 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____



HOANG V. NGUYEN
PRIMARY EXAMINER

Allowable Subject Matter

1. Claims 1-21 are allowed.
2. The following is an examiner's statement of reasons for allowance:

Regarding claim 1, Channabasappa et al (US 2004/0090368 A1) discloses a microstrip antenna array comprising a first dielectric layer; a plurality of rectangular shaped antenna elements mounted on the upper surface of the dielectric layer, the antenna elements being aligned with one another; an antenna feed network mounted on the substrate for connecting each of the antenna elements to an antenna feed network input terminal; and a ground plane affixed to a bottom surface of the dielectric layer.

Channabasappa, however, fails to further teach a first copper cross hatch pattern mounted on the upper surface of the dielectric layer around the periphery for each of the antenna elements wherein a gap forms between first, second and third edges of the periphery of each of the antenna elements and the copper cross hatch pattern; a second copper cross hatch pattern mounted on the bottom surface of the first dielectric substrate; a second dielectric layer positioned below the first dielectric layer in alignment with the first dielectric layer; a third copper cross hatch pattern mounted on an upper surface of the second dielectric layer, the third copper cross hatch pattern being in alignment and substantially identical to the second copper cross hatch pattern; and a copper ground plane affixed to a bottom surface of the second dielectric layer.

Claims 2-13 are allowed for depending on claim 1.

Regarding claim 14, Channabasappa et al discloses a microstrip antenna array comprising a first dielectric layer; six rectangular shaped antenna elements mounted on

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the upper surface of the dielectric layer, the six antenna elements being aligned with one another; an antenna feed network mounted on the substrate for connecting each of the eight antenna elements to an antenna feed network input terminal; and a ground plane.

Channabasappa, however, fails to further teach a first copper cross hatch pattern mounted on the upper surface of the dielectric layer around the periphery for each of the six antenna elements wherein a gap forms between first, second and third edges of the periphery of each of the antenna elements and the copper cross hatch pattern; a second copper cross hatch pattern mounted on the bottom surface of the first dielectric substrate; a second dielectric layer positioned below the first dielectric layer in alignment with the first dielectric layer; a third copper cross hatch pattern mounted on an upper surface of the second dielectric layer, the third copper cross hatch pattern being in alignment and substantially identical to the second copper cross hatch pattern; the copper ground plane affixed to a bottom surface of the second dielectric layer; and a plurality of copper plated through holes positioned within the first dielectric layer and a plurality of plated through holes positioned within the second dielectric layer, the copper plated through holes of the first dielectric layer aligning with the copper plated through holes of the second dielectric layer.

Claims 15-19 are allowed for depending on claim 14.

Regarding claims 20 and 21, none of the prior art of record, either taken singly or in combination, fairly teaches or suggests a reduced size TM cylindrical shaped microstrip antenna array comprising first, second and third dielectric layers, a plurality of rectangular shaped antenna elements; first, second and third copper cross hatch patterns;

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an antenna feed network; a solid copper ground plane; a plurality of copper plated through holes; and first and second bond films arranged in the configuration as claimed.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2004/002291 A1 discloses a stacked antenna array.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoang V Nguyen whose telephone number is (571) 272-1825. The examiner can normally be reached on Mondays-Fridays from 9:00 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Hvn

11/15/04

A handwritten signature in black ink, appearing to read 'Hoang V. Nguyen', with a long horizontal line extending to the right.

**HOANG V. NGUYEN
PRIMARY EXAMINER**